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The Effect of Metacognitive Strategy Training on the Improvement of Iranian EFL Learners' Writing

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Abstract

The purpose of this quasi-experimental study was to determine the impact of explicit metacognitive strategy instruction on Iranian EFL learners' writing . This study involved the teaching of five explicit metacognitive strategy lessons to students English at advance level. Students in both the treatment and comparison groups completed the Writing Pretest Essay, which was holistically scored to determine the equivalence of groups. The Writing Pretest Essays were submitted prior to the treatment and were compared to the Writing Post-test Essays that were submitted after the treatment (about six weeks later). The Writing Post-test Essays were holistically scored and analyzed to see if there was a significant difference in those essays prepared by students who had explicit instruction in metacognitive strategy use as compared to those who did not receive the instruction. The results of a ANOVA indicated that teaching metacognitive strategies could play a significant role in the improvement of the students' essays.

Keywords: Metacognition, Writing, Metacognitive Strategy Instruction

Introduction

As educators, if we examined our collective and historical teaching methodologies, our guiding principles, our philosophical and pragmatic stances, we might think that what has passed throughout the years as valid educational practice would still hold true. However, given the current state of education, a more honest assessment might be that our teaching is not nearly as successful as it once might have been and is not providing the expected results as it once might have done. The purpose of this study is to examine the impact that metacognitive strategy instruction will have on writing ability and whether the addition of such a component will result in improved student generated papers in English writing classes.

Despite the increased national focus on writing instruction by government agencies, statisticians, and educators, it is becoming more apparent that many students do not understand even the most rudimentary aspects of the task of writing or the fact that writing can be improved by working through a reflective, recursive process, with the use of metacognitive strategies. What theorists as well as practitioners profess to know of strategy instruction with regard to writing is a clear indicator that educators have scant insight, know little of the depth and breadth, and, on a whole, transfer rather inadequately to students what is known about creating a significant piece of written text.

There is still a great deal to learn about how to provide strategic instruction, at every level, from grade school through college, in order to produce successful, competent writers; however, metacognitive strategy use may be one way that learners could become aware of, monitor, and control their own work throughout the writing process.

As more and more basic and developmental writing courses have begun to resemble second language (L2) courses, where the students enrolled have had little exposure to writing or reading in

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their native language, and even less in their second language, there has been even more emphasis in research on what an instructor might do to facilitate significant and lasting metacognitive growth.

Unfortunately, too often, teachers themselves have been baffled by the act of writing, knowing only how to assess a work's relative merit or weakness and not much about how to help students gain an understanding of how they could engage successfully in the composing process (Emig, 1971). Sadly, for far too long, little if any work had been done by the mid 1980s that produced any significant results or helped teachers learn how they could teach students to become more metacognitively aware of their own composing processes (Applebee, 1984). As early as 1971, Emig said that "changes need[ed] to be made in the way composition is taught in American secondary schools" (p. 3). Emig boldly claimed that a basic part of the process was going to have to be the training and retraining of teachers of composition (p. 7). This is one premise upon which the current study is based.

In the past, teachers and administrators might have compensated for student failure by suggesting an alteration in the teaching technique, the learning environment, the course materials, and other external variables. It is the hope of this study to indicate that if teachers were to act as catalysts, helping students learn, perform, and self-monitor, if they were to permit students the time and space to tap into how they are learning, that they would be enabling students not only to conceptualize about their own knowledge but also to self-assess the ways that they, as individuals, learn best (Burke, 1994, p. 15).

Looking more carefully at students' behaviors, needs, and motivations, educators and politicians alike might soon come to realize that the failure of schools and of academic programs might actually have a simple and clear solution. Burke (1994) claimed that it was not that students were becoming less intelligent, but rather that "poor thinkers and poor problem solvers may, in fact, possess the skills [strategies] that they need to succeed in school but may fail to use those skills when engaged in certain tasks" (p. 15). If students could be guided by caring experts, who, themselves, have learned how to engage in thoughtful, reflective learning, not only would the process change but the paradigm would as well.

As our educational system has not radically changed in the last two decades, at least, one must conclude that we are not faring much better today than those early statistics indicate. If reading and writing help shape identity and increase one's understanding of human nature, then teachers of all subjects that require those skills have a daunting responsibility to their students. What is provided for students in the way of literate experiences will not only help them more fully understand themselves and potentially shape their future behaviors but will teach them how to understand the ramifications of what they do, when they engage in reading and writing activities. As such, this study will hope to make a statement about metacognition with regard to writing courses in particular but also about learning practices in general. An examination of metacognition may factor importantly into varied educational settings. We know from countless studies and anecdotal reports that students can see the importance of learning particular skills, but can they see what has helped them master those skills best or most effectively? Perhaps by examining the learning paradigm as it relates to writing and metacognition, we can uncover those larger areas of our system that need attention.

Metacognition

Piaget (1950) first began talking about knowing how one knows and thinking about one's thinking in his early theories of cognitive development and personal epistemology, but it was Flavell, who, in 1976, formally coined the term, metacognition, the seminal term upon which this study is based, stating that, "metacognition, or one's ability to know how he or she has learned or learns best" is comprised of several components: "knowledge about cognition that may help the learners improve their learning process, knowledge about oneself, knowledge of the learning task, and knowledge of strategies available to complete that task" (p. 232). Flavell stated that "to improve understanding and retention, learners have to take conscious steps to control their cognition" (p. 232).

By the twenty-first century, metacognition had a long list of identifiers and synonyms. Some researchers called it self-management (O'Neil & Speilberger, 1979) while others called it metamentation (Bogdon, 2000) or meta-learning (Cross & Steadman, 1996). Pintrich, Brown and Weinstein (1994) built upon Flavell's original theory by postu-

lating that metacognition consisted not just of two but rather three components: "(a) metacognitive knowledge (b) metacognitive judgments and monitoring and (c) self-regulation and control of cognition and learning" (as cited in Cross & Steadman, 1996, p. 58).

Scarr and Zanden (1984) defined metacognition as awareness and understanding of one's mental states, abilities, memory, and the processes of behavioral regulation. Glover, Ronning and Brunning (1990) simply stated that metacognition was knowledge about one's thought processes or "thinking about thinking," while others divided it into several sub skills. Gall, Gall, Jacobsen and Bullock (1990) defined the components of metacognitive skills as "knowing the learning process, selecting appropriate learning strategies, and monitoring how one's learning strategy [was] working" (p 18). Baker and Brown (1984) said that metacognition was composed of three equal parts: (a) "knowledge about one's own study skills and habits," (b) "the ability to monitor the success of one's study behavior," and (c) "the inclination to use compensatory strategies when studying successful[ly]" (p. 353-354).

Hofer (2004) contended that metacognitive processes and behaviors were "those that [involved] epistemic monitoring and judgment and that metacognitive awareness [could] be activated in the knowledge construction process" when one was deciding what information was useful and reconciling that with the processes of experts, (p. 43).

Constructivism, "an approach to learning that locates cognition and understanding within the individual" (Daley, 2002 p. 21) placed emphasis on self-reflection and knowledge construction and how, together, they could contribute to the development of skills in metacognition (Inmel, 2002, p. 2). This belief system, along with social constructivism, whereby a learner could construct his or her own knowledge and be encouraged and able to do so in a student-focused, knowledge-building, and socially-mediated environment, formed much of the foundation for the overall work in metacognitive theory. Forrest-Pressley, McKinnon and Waller (1985) furthered Vygotsky's point that cognitive growth was highly dependent on social interaction, and if constructivism operated upon the belief system that learning would occur because of a combination of what one was taught and what one brought to the learning environment, then students needed be active participants in their education and needed to make their own meaning from lessons and other educational experiences. The theory of legitimate peripheral participation espoused by Lave (1991) and the zone of proximal development espoused by Vygotsky's (1978) suggested that learners would learn best if they were able to be engaged as apprentices to an expert and were able to work in tandem, understanding and doing, in a teaching-learning environment. Another reason that metacognition emerged at this time was not only because it was considered a socially-negotiated skill, but because constructivism encouraged reflective and recursive behaviors in order for students to attain mastery. One such viable means of eliciting recursive and reflective behaviors as well as promoting self-assessment for understanding in the constructivist classroom has been and continues to be through writing.

Writing skill

Though perhaps not specifically termed as such, as early as 1973, Piaget spoke of the activity of writing, whereby one engaged in "reflecting abstraction" to a "higher level" while simultaneously being engaged in the sensorimotor activity of putting symbols on paper. Piaget's contention was that writing necessarily engages a deeper, reflective component, indicating that the social act of writing shares similar, overlapping cognitive functions with metacognition.

Vygotsky may have gone further than all others in exploring how developmental functions were mentally internalized. The guiding principle of Vygotsky's (1981) exploration was formulated in the (now famous) 'general genetic law of cultural development,' which stated that any function that a child might engage in appeared on two planes, first, on the social plane, and then on the psychological plane, clarifying Piaget's idea that one first needed to understand the external world in order to understand one's internal self. It thus became clear to researchers that metacognitive awareness came to individuals through the external world, by internalizations of it, and at the precise point at which one is ready to understand and utilize it.

Vygotsky spoke of the complexity of the act of writing and the magnitude of the process when he said, "It seems clear that mastery of such a complex sign system cannot be accomplished in a purely mechanical and external manner; rather it was the culmination of a long process of development of complex behavioral functions in the child" (Vy-

gotsky, 1978, p. 106). The daunting nature of the task was evident when Vygotsky said, "Only by understanding the entire history of sign development in the child and the place of writing in it can we approach a correct solution of the psychology of writing" (p. 106). The enormity of the task of engaging in writing and thus the implications for the teaching of writing cannot be underestimated and made simplistic.

Writing was only a tangential part of the general educational curriculum before the 1970s in America and did not factor prominently as a recognizable entity unto itself until the mid 1980s when it gained national attention and federal funding with the creation of the rather short-lived National Center for the Study of Writing and Literacy in Berkeley, California (Freedman, Flower, Hull & Hayes, 1995).

Unfortunately, for many years, educators and the politicians who have made educational decisions have focused too narrowly on what was needed for students to master writing, concentrating more on product than process (as witnessed by this country's emphasis on the writings required on standardized exams, such as SAT, AP, GRE, GMAT, etc.). Although the trend of product over process continued and still continues to be a powerful force in real world writing assessments, some of the first researchers to measure students' writing abilities (Bereiter & Scardamalia, 2012; Hayes & Flower, 1980) encouraged educators to consider a shift in thinking in order to place more emphasis on the process and less emphasis on the final product, an entity too often examined in isolation (as cited in Sitko, 2009, p. 98).

Writing process pedagogues professed that writing was a skill that, through strategic instruction imparted by knowledgeable teachers, could be mastered and could produce verifiable results (Kasper, 1997b, p. 10). This process involved experienced writers helping nascent writers see that thinking about what they were writing, and monitoring the process at the same time, would eventually result in the process becoming automatic and the product successful. Emig (1977) and Kasper (1997a) both found that the process would succeed only if teachers and students alike understood and carried out their individual roles.

Writing strategies

If strategies were methods or techniques used for solving problems and were thus purposeful and intentional actions performed to attain a particular goal or produce a particular product (Hallenbeck, 1996) then strategies for writing were tools or plans that one could use over and over again in different situations (p. 108) or put another way, although "strategies are goal directed and instrumental," Paris, Newman, and Jacobs (2004) claimed that "they depend on personal effort or agency" (p. 170) to be effective.

How must that strategy knowledge be accessed by students? In the field of writing pedagogy, there were two differing paradigms that emerged over the last sixty or so years, each encouraging and promoting what they believed to be the most effective way for students to learn how to write and each espousing how they believed that instructors might best transfer writing strategy and skills information to their students. On the one hand, were the Whole Language advocates, or those who favored the process approach, which professed that writing was a non-linear, recursive activity. This belief system was based upon students creating authentic pieces of writing that were perceived by the students as worthwhile and valuable, not assignments handed out by the teacher (Graves, 1983). Generally speaking, advocates of the process approach claimed that the act of writing could be broken down into the following six stages: exploring, shaping, drafting, sharing, revising, and publishing (Weber, 1990).

With slight variations in wording, all theorists of the process or whole language approach agreed that writing should be designed for real world tasks, and that it was a recursive and somewhat spontaneous activity.

The other paradigm was the ITIP (Instructional Theory into Practice) or the UCLA model (Hunter, 2010), a more skills-oriented approach, directed by teacher decisions, methodology, and expertise, often utilizing workbooks, worksheets, and isolated grammar practice). Advocates of the skills-based approach emphasized teacher-directed activities and encouraged writing that was sequentially ordered, prescriptive, and formulaic. Writing proponents of the ITIP approach taught students that writing was a step-by-step process, that it should adhere precisely to an outline, and that it should generally lead to planned outcomes.

There were criticisms of both methods. Perl (1980), a writing process proponent, said that "those who subscribe to the linear model find themselves easily frustrated when what they write does not immediately correspond to what they planned or when

what they produce leaves them with little sense of accomplishment. . . cutting themselves off from discovering something new" (p. 368) or as Weber (1990) said was too mechanistic. Likewise, opponents of the writing process approach felt that it was too student-centered and laissez-faire (Weber, 1990).

Literature review

Rohman and Wlecke (1964) were among the first researchers to look at writing as a process that students could undertake rather than just a product to be produced at the end of a task. In their seminal study, they stated that (a) writing was made up of the stages of pre-writing, writing, and re-writing, (b) that writing was done in a linear or chronological manner, and (c) that revision was undertaken only after the first draft was completed. This triggered many theorists and researchers to more carefully examine the various stages of the writing process and particularly to examine how and when rethinking and the rewriting portions of the process occurred.

Pianko (1979) found that experienced writers reflected upon their work, whereas inexperienced writers composed their products straight through and revised little beyond changes in mechanics (p. 277). Pianko claimed that teachers of composition themselves generally did not know how to focus on more than that. But researchers, like Perl and Pianko, thought it might be useful to ask both skilled and unskilled college writers what they did when they wrote in order to gain knowledge of what students were doing at the various stages of the writing process.

Palincsar and Brown (1987) claimed that metacognitive instruction should be conceptualized as an integral part of all teaching activity. "The teacher needs to lead the instruction, modeling and providing explanations which render the strategies explicit, concrete, and overt. Teacher involvement then becomes focused on evaluation and encouragement" (p. 73). The results of Palincsar and Brown's study were that students in the treatment groups surpassed the students in the control group on all written measures, with those students who received text structure instruction showing the greatest gains in their ability to use text structure in their writing.

El Hindi and Childers (1996, as cited in Karbalaei, 2011) examined the metacognitive awareness and perceived academic outcomes of a population of at-risk college students. Situation-specific questionnaires were used to assess participants' metacognitive awareness and self-assessed attributions for successful and unsuccessful learning. The study focused on reading and writing, as the authors stated that theoretical scholarship has, for some time, identified reading and writing as related cognitive endeavors because they share common overlapping skills (p. 5). The study incorporated a metacognitive awareness measure, which indicated that "participants tended to have higher metaognitive awareness scores for writing than they did for reading" (p. 11).

McMahon (2002) described a model for self-regulated and metacognitive learning by suggesting that learning could be enhanced through the integration of an on-line learning environment. The main instructional approach was scaffolding, whereby support was provided by reflection and peer feedback, and through the online use of tools for annotation and portfolio generation" (p. 457). McMahon (2002) found that self-regulation was the "activating and sustaining of cognitions, behaviors, and affects which systematically led students toward their goals," encouraging students to rely on their own internal resources to govern their learning. According to McMahon (2002), a good deal of instruction was needed from the instructor as well as the added resources of the computer.

Individuating education was also examined in many academic areas, metacognition and writing notwithstanding (Ewing, 2002, 2005). Chiang (1998) engaged in a six year study that examined how metacognitive strategies could encourage success in learning and that the use of individual learning contracts could enhance an individual's ability to become a more conscientious learner. Results indicated that the process helped students become more conscientious and more metacognitively aware and that instructors found the learning contracts, appraisals, reflective journals, and conferences helped them develop better rapport with their students.

Andrade and Boulay (2003) looked at seventh and eighth grade student self-assessment of writing to see if promoting and supporting learning in meaningful ways prompted students to self-reflect, rethink, and revise some of the processes they engaged in while they wrote their essays. The authors attempted to "honor students' developmental stages, apropos of Mullin (1998), by referring to ap-

propriate grade-level standards" and not expecting more than that (p. 21). Their design reflected an interest of the current research in self-monitoring and writing.

The results indicated that even though use of a rubric and self-assessment lessons seemed to have helped students, statistically there was no difference in the scores. The researchers wish to revise the study by: "extending the treatment time" and "co-creating rubrics with students" (p. 27). The responses that students provided indicated a somewhat limited and rather superficial knowledge of writing. Adding a metacognitive component might prove useful to a future study.

Ley and Young (2005) conducted a study involving developmental college students' perceptions of self-regulation, which they claimed was "synonymous with metacognition" and found that selecting certain self-regulating strategies "may be a key distinguishing characteristic between developmental and regular admission college students and between more and less expert learners" (p. 60). One interesting result was that the developmental students did not report using the strategy of "monitoring," which is associated with "higher achievement status" (p. 65) but did report using self-evaluation (a self-regulation or metacognitive strategy) only with unfinished work, which the authors claimed "would be insufficient as an effective learning strategy independent of other strategies as it required completion of activities to be evaluated" (p. 65). Results suggested that a similar study might be undertaken with students engaging in an authentic writing assignment.

Research question

The purpose of this quasi-experimental study was to determine the impact of explicit metacognitive strategy instruction on Iranian EFL learners' writing. The research question addressed in this study was whether explicit metacognitive strategy instruction plays any role on enhancing Iranian EFL students' writing?

Methodology

Research Design

The study was based upon a non-equivalent control group design, similar to the pre-test-post-test control-group design except that instead of randomly selecting participants from a population, this study randomly assigned participants to groups (Martella, Nelson & Marchand-Martella, 1999, p. 146).

Participants

The participants taking part in this study were chosen from among the students in Safir English Institute in Tehran at advanced level. The participants were 20 to 28 years old. Out of 70 students taking part in an English proficiency test, 52 students were selected based on their scores in TOFEL proficiency test as homogeneous participants. Then, the selected students were randomly assigned to one control group and one experimental group.

Instruments

TOEFL proficiency test: In order to check the level of proficiency of students at the beginning of the study, a TOEFL proficiency test was used. This test was selected because it is inexpensive, easy to administer, and easy to score objectively. Further, according to Knoll (1998), the grammar section of TOEFL test is expected to evaluate learners' knowledge of writing sub-skills, including grammar and sentence structure. The results of the TOEFL grammar section were calculated and entered into ANOVA analysis. The result of the ANOVA indicated that there was no statistically significant mean differences between the experimental and control group in the TOEFL section scores. Therefore, the ANOVA results for the TEOFL mean scores suggest that the two groups did not show difference in terms of their general L2 proficiency.

Writing Pre-test Essay and Writing Post-test Essay. The primary dependent variables in the study were the Writing Pre-test Essay and the Writing Post-test Essay. Students received a suggested pre-test essay topic that was of a personal nature (recall a past event) on one of the first days of the class. The Writing Pre-test Essay was given to assess the equivalence of the treatment and comparison groups at the start of the study and also to assess students' abilities to create clear and readable texts. The Writing Post-test Essay at the end of the six-week study was, in and of itself, observational and reflective. The suggested prompt was a synthesis topic asking students to compare a past writing to a present writing, incorporating their view of themselves as writers, but since the teachers in the study felt that prompt was geared more toward the treatment group an additional prompt was discussed, and a collaborative decision was made to offer teachers a choice of giving their students a topic to ask students to discuss an object that they had seen many times before but upon reflection had

recently come to see differently.

Main Procedures

All the data were collected over a 3-week period in four English classes at Safir English institute. One week before the experiment, participants were informed that all details of the procedures would be confidential and their essays were not graded as part of their academic achievement. Then, a TOEFL proficiency test was used to find homogeneous participants. Based on the results of TOEFL test, those participants placed between one standard deviation above and below the mean as the main participants. Then, Writing Pre-test Essay was given to all participants as pretest .

In the next stage, the experimental group were implemented the metacognitive strategy instruction, and the instructor of the control group class taught the course as they had originally planned, with a collection of readings to augment writing assignments. All instructors were actively involved in the day-to-day workings of the study.

Regarding the control group, they did not receive any of the metacognitive strategy instruction and followed the syllabus and course plan that the teacher had originally planned.

Finally, both groups were given Writing Essays as posttest and their data were entered into SPSS for data analysis.

Metacognitive strategy training

The treatment group received five explicit lessons in metacognitive strategy use. The overall goal of the metacognitive strategy instruction was to help students learn to write better essays by encouraging them to employ metacognitive strategies throughout the writing process. The five lessons designed to prompt students to consider writing metacognitively were based upon criteria that established expectations not only specifically for writing courses and courses that expect a good deal of writing but for large scale writing assessments and various university-wide writing requirements.

The lessons were developed to encourage students to think about their writing at the various stages of the writing process, to help them become aware of their goals, and to help them carefully orchestrate strategies at key junctures during the writing process. The first lesson prompted students to generate thoughts by recursively and metacognitively searching their memories for ideas. The strategies of activating memory, brainstorming, clustering, and planning were introduced. The second lesson asked students to organize their thoughts and writing ideas in an understandable and meaningful manner and utilize the strategies of organizing, thinking aloud, and elaboration. The third lesson introduced the concept of self-monitoring. The fourth lesson involved orchestrating the strategies introduced in the first three lessons in order to create a better text. The fifth lesson involved the student evaluating his or her most recent essay and acting as a peer reviewer for a partner's essay, thus employing the strategy of reviewing and returning to the strategies introduced at the beginning to see how the process could evolve in a recursive manner.

Theories behind the five metacognitive strategy lessons proposed in this study correspond to Englert and Raphael's (1988) five points for attentive and reflective thinking Effective strategies at the pre-writing stage that correspond to the first metacognitive strategy instruction are: identifying a purpose, activating prior knowledge (Hayes and Flower, 1987, as cited in Mattern, Camara, & Kobrin, 2007), generating ideas (Raphael, Englert & Kirschner, 1986), and employing the think aloud protocol (Elbow, 1973), all of which can help eliminate writer's block. The process used to develop this treatment was grounded in cognitive strategy instruction in literacy (Almasi, 2003). The overall goal of the second metacognitive strategy instruction was to teach students to generate text and to elaborate upon ideas, while considering organizational markers at the drafting stage. The strategies involved are: self-questioning, elaboration, planning, self-regulating, reviewing, and thinking aloud (Englert, Raphael, Fear & Anderson, 1988). The overall goal of the third metacognitive strategy instruction was for students to become aware of "activating" the strategy of monitoring and of "putting it to use" (El Hindi, 1996). The strategies of planning, organizing,, self-questioning, elaboration, monitoring, and thinking aloud are also reinforced at this stage, and the research support that backs them are mentioned in lesson 2. The overall goal of the fourth metacognitive strategy instruction was to help students learn to "orchestrate" the various strategies of brainstorming, clustering, activating memory, elaboration, organizing, planning, self-questioning, writing like a reader, reviewing, and thinking aloud, which DeStefano and Gordon (1986) believe must be deliberately taught and their use . . . made explicit" (p. 184). The overall goal of the fifth metacognitive strategy instruction was to help students learn to self-evaluate and peer evaluate a paper's completeness. Englert et al. (1988) and

Baker and Brown (1984) claimed that knowledge of text structure would influence the decision making ability of a writer who, upon reexamining his or her text, would be looking to see that it was clearly and coherently written.

Some of the texts used by the instructors in the study were: New Century Handbook by Hult and Huckin (2007), College Writing Skills with Readings by Langan (2008), American Voices by LaGuardia (2006), Reading Critically, Writing Well by Axelrod (2005), and World of Ideas by Jacobus (2006). The goal was for instructors to refer to the metacognitive lessons frequently so that there was carry-over from one lesson to the next in order to reinforce previous strategy instruction, practice, and use. The study spanned approximately 10 class meetings.

Scoring Procedure

In order to analyze the written products of both control and experimental group in this study, two EFL teachers rated all the learners' written products. Further, they were instructed by the researcher in order to minimize an individual rater's variability and to enhance interrater reliability. Raters were asked to use full 5-point scales in the analytic scoring process. The maximum mark given for each section was 5, and the total number of the sections is five as follows: Content, Organization, Language in Use, Grammar, and Mechanics. Thus, the maximum composite score of all the sections was 25 in total. The final score for each written product is the average of the two raters' scores.

Research Question

By considering all the above-mentioned issues and to fulfill the purpose of this study, the following research questions are raised:

Results and Discussion

1. Does explicit metacognitive strategy instruction plays any role on enhancing Iranian EFL students' writing?

According to the posed research question, the following null hypothesis was stated:

H0: Explicit metacognitive strategy instruction does not play any role on enhancing Iranian EFL students' writing.

Before answering this research question, we should know whether there is any significant difference between subjects in control and experimental group before doing writing task by the students in the experimental and control group classrooms. Table 1 shows the results of data analysis.

Table 1. Paired sample t- test for the students' scores in pretest in experimental and control group

Group	Mean	SD	Std. Error Mean	t	df	Sig (2-tailed)
Pair 1- control and experimental group	-.360	2.447	.489	-.735	24	0.469

As it is clear from table 1 , there is no significant difference between the control and experimental group before metacognitive strategy training because the amount of t-value is -.735 and p-value 0.469 ($p>0.05$). Therefore, we conclude that the students in both groups had the same grammatical knowledge in writing.

By considering the above result, Analysis of Variance (ANOVA) was used in order to answer the first research question. As it is clear from Table 2, ANOVA results showed that there is a significant difference between the students' performance in their writing products in the control and experimental group because the obtained F value was 43.934 and P value was .000.

Now, in order to see which group had a better mean, we should consider the results in Table 3. As it is evident from this table, mean scores of the samples in experimental group were 17.56 while it was reported to be 12.40 among the subjects in the control group. In fact, the students in experimental group reported to have a better performance in their writing task products when they were taught some metacognitive writing strategies in comparison to the students in control group, who completed the written task without any treatment. Therefore, by considering the results of ANOVA, we can come to this conclusion that explicit metacognitive strategy instruction plays a significant role on enhancing Iranian EFL students' writing.. With regard to this result, the null hypothesis (Explicit metacognitive strategy instruction does not play any role on enhancing Iranian EFL students' writing) is rejected.

Table 2. Results of ANOVA for written task products in experimental and control group

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between groups	345.026	1	345.026	43.934	.000
Within groups	392.667	50	7.853		
Total	737.692	51			

Table 3. Mean posttest of written task products in experimental and control group

Group	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Control	25	12.40	2.901	.580	8	18
Experimental	27	17.56	2.708	.521	14	22
Total	52	15.08	3.803	.527	8	22

In general, metacognitive strategy training can give teachers and students a tool to improve second language acquisition by changing unproductive learning habits to strategies for achievement used by successful and effective second language learners (Robbins 1991). This kind of training can be used as a new technique for teaching writing.

In general, the results of this study indicate that the metacognitive strategy training had an impact on learners' written performance. These results are in line with earlier investigations such as the study done by Nosratinia and Adibifar (2014), in which they investigated the effect of metacognitive strategy instruction on the writing performance of field-dependent and field-independent intermediate learners. The results revealed that the experimental group did statistically better in their post-test. Moreover field-independent learners outperformed field-dependent ones in their post-test.

However, the results of this study are nor in congruent with the study done by El Dinary and Schuder (1993), who found that strategy instruction was not helpful to students who did not have some rudimentary knowledge of strategies, similar to the findings of Englert, Raphael, Fear and Anderson (1988). This factor could have had a significant impact upon the results of this study. Gourgey (1998) claimed that:

Students' reactions to metacognitive training raise some issues about acquisition of these skills. Students who are not used to thinking metacognitively sometimes resist having to do so, especially if they have been passive learners for many years. They do not understand how to be more active in their learning or why it is important, and feel uncomfortable with the extra effort required. Improving these students' metacognitive skills is possible but requires patience and persistence on the part of both instructor and students. Researchers have noted that students need scaffolded instruction providing strong initial support that is gradually withdrawn as they become more proficient at self-regulation (p. 95).

Conclusion

In spite of the results obtained in the present study, metacognition may not have been the most developmentally appropriate place to begin a study that is seeking to gain knowledge about improving writing ability among college students. Hierarchically, there are a number of precursors or prerequisites to metacognitive awareness, with metacognition developmentally occurring about mid-way through the process. Devine (1993) said that the first step in learning to write well was to have sufficient content knowledge and that if students did not have enough knowledge to have something to say, it was doubtful that they would be able to write well. Applebee (1981) stated that an effective writer would have to be a critical thinker and have to be able to indicate solid reasoning ability, and Devine (1993) stated that after those criteria were met, the student would have to become familiar with rhetorical devices, those qualities of writing that allow ideas to be conveyed in a clear, coherent, and interesting manner. It is at this point that explicit metacognitive strategy instruction can be most beneficial. Sternberg

(1992) said that students needed to be taught strategy use when it was needed. Just as grammar lessons are most effective when delivered in the context of student essays, teaching strategies should be delivered in authentic contexts that are tied to student work and not presented in isolation, as fixed and imposed commodities (Englert, Raphael, Fear & Anderson, 1988, p. 364).

The findings of this study was able to validate what many researchers and theorists postulated would be the case that increased, self-reflective awareness would not only encourage better writing but would result in better writing.

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